

REMARKS

Claims 1-9 and 11-23 are pending in this application. By this Amendment, claim 1 is amended and claims 10 is canceled without prejudice to or disclaimer of the subject matter set forth therein. Support for the amendments to claim 1 can be found in the specification as originally filed, for example, at page 20, lines 22-24 and page 30, lines 26-27; and in original claims 1 and 10. No new matter is added by these amendments.

I. Claim Rejections Under 35 U.C.S. §102

A. Claim 23

The Office Action rejects claim 23 under 35 U.S.C. §102(b) over European Patent Application Publication EP 0 936 249 A1 to Rayner et al. Applicants respectfully traverse this rejection.

Independent claim 23 sets forth an "aqueous coating composition comprising a thiol-containing polyurethane and a polyacrylate dispersion."

Rayner discloses adhesive compositions consisting of an anionic sulfonated polyester urethane, an anionic carboxylated polyester urethane and an acryate-styrene dispersion. *See* Rayner, Abstract. That is, Rayner discloses adhesive compositions that include sulfonated polyurethanes and polyacrylate dispersions. The Office Action takes the position that these disclosures of Rayner anticipate claim 23. Applicants respectfully disagree.

Rayner discloses sulfonated polyurethanes, but does not disclose thiol-containing polyurethanes, such as those set forth in claim 23. Thiol functional groups and sulfonate functional groups are not chemically equivalent. Thiol functional groups (-SH) have different chemical structures and different properties from sulfonate functional groups (-SO₃H). Thus, Rayner does not disclose at least the "thiol-containing polyurethane" of claim 23.

Accordingly, Applicants respectfully submit that claim 23 is patentable over Rayner. Reconsideration and withdrawal of the rejection are respectfully requested.

II. Claim Rejections Under 35 U.S.C. §102/§103

A. Claims 1, 3-7, 11, 13-17 and 21

The Office Action rejects claims 1, 3-7, 11, 13-17 and 21 under 35 U.S.C. §102(b) or, in the alternative, under 35 U.S.C. §103(a) over U.S. Patent No. 4,361,626 to Boba et al. Applicants respectfully traverse the rejections.

Independent claim 1 sets forth a "multilayer coating system comprising at least one layer a) comprising a coating composition a) comprising at least one resin and an effective number of thiol groups, wherein layer a) was applied by rolling, spraying, brushing, flow coating, dipping or roller coating, and at least one layer b) comprising a coating composition b) comprising at least one resin and an effective number of thiol-reactive groups, wherein coating composition b) is a 2-component composition and comprises a component (i) which comprises thiol-reactive groups and a second component (ii) which comprises groups that are reactive with thiol-reactive groups; at least one layer a) and at least one layer b) having at least one common layer boundary." Claims 3-7, 11, 13-17 and 21 depend directly or indirectly from claim 1 and incorporate all of the limitations thereof.

Independent claim 1 has been amended herein to incorporate the subject matter of non-rejected claim 10. In particular, claim 1 has been amended to set forth that "coating composition b) is a 2-component composition and comprises a component (i) which comprises thiol-reactive groups and a second component (ii) which comprises groups that are reactive with thiol-reactive groups," which is neither taught nor suggested by Boba. Applicants respectfully submit that, for at least the same reasons that claim 10 is patentable over Boba, independent claim 1 is also patentable over Boba. Applicants further submit that claims 3-7, 11, 13-17 and 21, which depend from and incorporate all of the limitations of claim 1, are patentable for at least the same reasons that claim 1 is patentable.

Reconsideration and withdrawal of the rejections are respectfully requested.

B. Claims 1, 2, 5-12, 16, 17, 19, 21 and 22

The Office Action rejects claims 1, 2, 5-12, 16, 17, 19, 21 and 22 under 35 U.S.C. §102(b) or, in the alternative, under 35 U.S.C. §103(a) over U.S. Patent No. 4,619,746 to Delaney et al. Applicants respectfully traverse the rejections.

Claim 1 is as set forth above; claims 2, 5-9, 11, 12, 16, 17, 19, 21 and 22 depend directly or indirectly from claim 1 and incorporate all of the limitations thereof, claim 10 having been canceled by this Amendment.

Delaney describes a method that comprises electrophoretically applying a basecoat on to a substrate and then non-electrophoretically applying a topcoat. *See* Delaney, col. 1, lines 40-57. The Delaney basecoat contains a binder comprising an active hydrogen-containing material, which may have hydroxyl-functionality, amine-functionality, mercapto-functionality, or a mixture thereof. *See* Delaney, col. 2, lines 3-8. Based on these teachings, the Office Action takes the position that the Delaney basecoat corresponds to layer a) of the pending claims.

However, Delaney does not teach that the basecoat comprises an effective number of thiol groups, as set forth in claim 1. Rather, Delaney teaches that its basecoat may contain one or more of hydroxyl groups, amine groups and mercapto (or thiol) groups; thus, Delaney teaches, or at least suggests, that these functional groups are equivalent and provide the same technical effects. *See* Delaney, col. 2, lines 3-10.

In contrast, the pending claims require that coating composition a), and layer a), contain an "effective number of thiol groups." These thiol groups in layer a) allow the multi layer coating system to achieve increased hardness levels. Multi layer coating systems in which coating composition a) and layer a) contain hydroxyl and/or amine functional groups, but not an effective number of thiol functional groups, do not achieve increased hardness. The specification illustrates this feature in Table 5. *See* Specification, page 44. Examples 25

to 27 contain thiol groups in the basecoat, corresponding to coating layer a), and Comparative Examples 28 to 30 contain hydroxyl groups in the basecoat. *See* Specification, page 42, line 1 - page 44, line 3. The Persoz hardnesses of the multi layer coating systems of Examples 25 to 27, which correspond to the claimed systems, are significantly higher than the Persoz hardnesses of the multi layer coating systems of Comparative Examples 28 to 30. From these results, it is clear that at least thiol groups and hydroxyl groups are not equivalent and do not provide multi layer coating systems having similar hardnesses.

Because Delaney teaches that hydroxyl groups, amine groups and mercapto groups are equivalent and does not provide any teachings or suggestions for selecting one type of functional group in order to achieve increased hardness of the coating system, Applicants respectfully submit that Delaney does not teach or suggest a multi layer system comprising "at least one layer a) comprising a coating composition a) comprising at least one resin and an effective number of thiol groups," as set forth in independent claim 1. For at least this reason, Delaney does not teach or suggest the subject matter of claim 1 and its dependent claims.

In addition, claim 1 sets forth that coating composition a) is applied by "rolling, spraying, brushing, flow coating, dipping or roller coating." However, Delaney teaches only electrodeposition for applying its basecoat to a substrate. *See* Delaney, col. 1, lines 45-46. Because Delaney neither teaches or suggests this feature of independent claim 1, Applicants respectfully submit that Delaney does not teach or suggest the subject matter of claim 1 and its dependent claims.

For at least the above reasons, Applicants respectfully submit that independent claim 1 and its dependent claims 2, 5-12, 16, 17, 19, 21 and 22 are patentable over Delaney. Accordingly, reconsideration and withdrawal of the rejections are respectfully requested.

C. Claims 1, 3, 5-7, 9, 14, 16, 17 and 19

The Office Action rejects claims 1, 3, 5-7, 9, 14, 16, 17 and 19 under 35 U.S.C. §102(b) or, in the alternative, under 35 U.S.C. §103(a) over U.S. Patent No. 4,906,498 to Ichikawa et al. Applicants respectfully traverse the rejections.

Claim 1 is as set forth above; claims 3, 5-7, 9, 14, 16, 17 and 19 depend directly or indirectly from claim 1 and incorporate all of the limitations thereof.

Independent claim 1 has been amended herein to incorporate the subject matter of non-rejected claim 10. In particular, claim 1 has been amended to set forth that "coating composition b) is a 2-component composition and comprises a component (i) which comprises thiol-reactive groups and a second component (ii) which comprises groups that are reactive with thiol-reactive groups," which is neither taught nor suggested by Ichikawa. Applicants respectfully submit that, for at least the same reasons that claim 10 is patentable over Ichikawa, independent claim 1 is also patentable over Ichikawa.

In addition, claim 1 has been amended herein to require that "layer a) was applied by rolling, spraying, brushing, flow coating, dipping or roller coating." This feature is also not taught or suggested by Ichikawa, which teaches that its layers are formed by casting. *See* Ichikawa, col. 1, lines 56-68. Applicants respectfully submit that claim 1 is patentable over Ichikawa for at least this additional reason.

Applicants further submit that claims 3, 5-7, 9, 14, 16, 17 and 19, which depend from and incorporate all of the limitations of claim 1, are patentable for at least the same reasons that claim 1 is patentable.

Accordingly, reconsideration and withdrawal of the rejections are respectfully requested.

III. Claim Objections

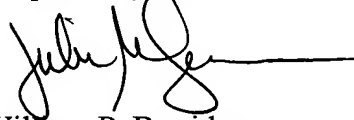
The Office Action objects to claims 18 and 20 as being dependent upon a rejected base claim. Applicants thank the Examiner for the indication that claims 18 and 20 contain allowable subject matter. Because the rejection is overcome for the reasons described above, Applicants respectfully submit that claims 18 and 20 are in condition for allowance.

IV. Conclusion

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1-9 and 11-23 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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